

comprises the reaction product of a cationic polyamide/polyamine/epichlorohydrin resin and a reactant comprising an unsaturated polymerizable hydrocarbon moiety. The formed unsaturated hydrocarbon moiety side-chains of said reaction product are co-polymerized with latex-forming polymerizable monomers or oligomers that are incorporated into the resin resulting in a latex composition in the form of particles having an average size in the range of from 10 to 500 nm (cf. col.3, l.51-60, col.5 l.29-col.6, l.41, col.6, l.66-col.7, l.1).

Noda is silent on providing hydrophobic side-chain substituents as defined in pending claims 19 and 25. Noda is also silent on providing of wet strength agents imparting increased softness to paper.

Thus, claims 19-29 are novel and nonobvious over Noda.

Stockmann (US 3,748,221) discloses a high molecular weight chain extended copolyamide-polyamine resin composition comprising the reaction product of a chain extension reagent, i.e. a cross-linking agent, with a copolyamide-polyamine intermediate which comprises the reaction product of a lactone or an alkylester of acrylic or methacrylic acid, a polyalkylene polyamine and a carboxylic acid reagent. The composition is obtained by the following steps:

- 1) reacting at least one polyalkylene polyamine with at least one lactone or an alkyl ester of acrylic or methacrylic acid;
- 2) reacting the resulting polyamine-lactone or polyamine ester adduct with at least one carboxylic acid reagent; and
- 3) chain extending the resulting copolyamide-polyamine intermediate by reacting it with a suitable cross-linking agent.

As chain extension agent, an epihalohydrin reagent or a 1,2-dichloroethane can be used to provide thermosetting or non-thermosetting resins (cf. col.4, l.21-28 for specific examples). The chain extension agents or cross-linking agents link the copolyamide-polyamine intermediates to one another to form a resin (col.4, l.13-18).

It is alleged that claim 19 lacks novelty in view of Stockmann based on its teaching of a polyamidoamine which has been chain extended (cross-linked) with hydrophobic groups such as methacrylic acid derivatives, carboxylic acids and derivatives etc.

However, Stockmann only teaches the formation of the resin composition referred to above while being silent on hydrophobic side-chain substituents on the cationic nitrogen-containing polymers, particularly methacrylic acid derivatives, carboxylic acids and derivatives as hydrophobic side-chain substituents. On the contrary, the mentioned compounds are incorporated in the backbone of the polymers forming the resin. Whereas the extended copolyamide-polyamine resin formed may contain hydrophobic parts, Stockmann is silent on the formation of hydrophobic side-chain substituents on the nitrogen-containing cationic polymers.

Thus, claims 19 and 25 are novel over Stockmann at least in that they comprise addition or incorporation of a paper wet strength resin or agent comprising a cationic nitrogen-containing polymer having hydrophobic side-chain substituents. The hydrophobic side-chain substituents on the nitrogen-containing polymers are illustrated e.g. on p.4,I.9-30 in the specification. Resins provided with hydrophobic side-chain substituents impart improved relative wet strength to the tissue paper compared to conventional resins without hydrophobic side-chain substituents on the nitrogen-containing polymers (cf. tables 1-4 of the present application). As is evident from the tables, an increased relative wet strength, which is a measure of the softness of the paper, is obtained with the resins or agents according to the claimed invention.

Since Stockmann only addresses the problem to provide novel chain extended copolyamide-polyamine resin compositions without hydrophobic side-chain substituents operable both under acidic and alkaline conditions, a skilled person

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would not be incited to provide novel wet strength agents with imparting increased softness to paper as defined in claims 19 and 25.

Thus, claims 19-29 are novel and nonobvious over Stockmann.

Respectfully submitted,



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MARKED VERSION

IN THE CLAIMS:

Please amend claims 19 and 25 as follows:

19. (Amended) Process for production of tissue paper comprising adding a paper wet strength resin or agent, comprising a cationic nitrogen-containing polymer having hydrophobic side-chain substituents containing up to 40 carbon atoms, to an aqueous cellulosic suspension.

25. (Amended) Tissue paper comprising a paper wet strength resin or agent comprising a cationic nitrogen-containing polymer having hydrophobic side-chain substituents containing up to 40 carbon atoms.

Please add the following new claims:

- -28. (New) Process according to claim 19, wherein the hydrophobic side-chain substituents contain 6-40 carbon atoms.

29. (New) Tissue paper according to claim 25, wherein the hydrophobic side-chain substituents contain 6-40 carbon atoms--

TECHNICAL INFORMATION
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